PORTER, WRIGHT, MORRIS & ARTHUR
Attorneys & Counselors at Law

41 South High Street
Columbus, Ohio 43215-6194
Telephone: 614-227-2000
Facsimile: 614-227-2100
Nationwide: 800-533-2794

KATHLEEN MCMANUS TRAFFORD
614-227-1915
ktrafford@porterwright.com

EX PARTE OR LATE FILED

May 27, 1998

Magalie Roman Salas, Secretary
Federal Communications Commission
1919 M Street N.W.,Room 222
Washington, D.C. 20554

Re: Ex Parte Notice, CC Docket 97-211
(WorldCom and MCI Application for Transfer of Control)

Dear Ms. Salas,

On May 20, 1998, David J. Koch, President and CEO of Fiber Network Solutions, Inc., and Kyle C. Bacon, Vice President - Operations and COO of Fiber Network Solutions, Inc., had a telephone conference with Commission staff members from the Common Carrier Bureau, specifically, Michelle Carey, Eric Bash, Patrick Degrava, Bill Bailey and Michael Kennedy.

The telephone conference was requested by the Commission staff in order to clarify certain points made in the Reply Comments filed by Fiber Network Solutions, Inc. on March 19, 1998. Mr. Koch and Mr. Bacon responded to questions related to why open peering is necessary and why charges for peering are not justified. They clarified the basis for the cost estimates utilized in the Reply Comments and explained the difference between peering and transit services. They also responded to questions concerning the role of private peering. Additional points of clarification made during the telephone conference or suggested by the staff's questions are included in the attached Clarification Memorandum.

In accordance with the Commission's rule, an original and one copy of this notice as well as all material provided to the Commission staff are being submitted to the Secretary.

Very truly yours,

Kathleen M. Trafford

cc: Michelle Carey, Eric Bash, Patrick Degrava, Bill Bailey and Michael Kennedy

Before the
Federal Communication Commission
Washington, D.C. 20554

In the Matter of	)	
Applications of WorldCom, Inc. and	)	
MCI Communications Corporation for	)	CC Docket No. 97-211
Transfer of Control of	)	
MCI Communications Corporation	)	
To WorldCom, Inc.	)	

Clarification of Comments During Ex Parte Interview of Fiber Network Solutions, Inc. on May 20, 1998

David J. Koch
President and CEO
Kyle C. Bacon
Vice President - Operations and COO
Fiber Network Solutions, Inc.
6800 Lauffer Road
Columbus, Ohio 43231
800-899-5619

Dated: May 27, 1998

CLARIFICATION OF COMMENTS

These comments are submitted with the intent of providing a technical understanding in layman terms of the cost associated with delivering traffic from one network to another. Comparatives are presented of: Direct Peering at a single NAP exchange point; direct peering at geographically diverse NAP exchange points; utilizing transit services; and, private peering verses peering at the public exchange points or NAP's.

WorldCom presently controls or owns controlling interest in; UUnet, Metropolitan Fiber Systems (MFS), the MAE East and MAE West NAP's, Compuserve, AOL, ANS, Brooks Fiber, GridNet, NLnet, BLT Technologies, Choice Cellular, LDDS, and Wiltel. If the MCI/WorldCom merger is approved, WorldCom will also own controlling interest in MCI. For the purpose of these Reply Comments, these organizations are, when applicable, collectively referred to as the "Enterprise."

PACKET DELIVERY COST ANALYSIS

Digital traffic is transmitted over a network in units referred to as "packets." The size of a single packet ranges from one byte to over 18,000 bytes. A single text document that has 80 characters per line and 40 lines per page averages 2,000 bytes. For the sake of this analysis, we assume that the document is being transferred using File Transfer Protocol (FTP) in 1 Kilobyte packets (1,024 bytes). Each of the networks that interconnect and combine to form what we know as the Internet transmit and deliver (carry) tens of millions of packets per second. For this analysis, it is difficult to arrive at an actual dollar cost to carry a single packet. The dollar figure

would be many digits to the right of the decimal. Therefore, this analysis utilizes a fixed form of commerce, "CyberUnits" as a monetary value associated with the cost of delivering a single packet.

Assume the average packet costs four CyberUnits to deliver if that packets originates from a subscriber on one provider's network and is destined to a subscriber on a different provider's network.

Fiber Network Solutions, Inc. ("FNSI") maintains a national backbone that is connected to the MAE West, PAC Bell, Chicago AADS and MAE East NAP's. UUnet also maintains a national backbone and is connected to geographically diverse NAP's or exchange points in common with FNSI. There is no direct peering between the two networks. FNSI buys transit services from a transit provider who has a direct peering relationship with UUnet. Therefore, both FNSI and UUnet exchange traffic with one another through the transit provider's network facilitating communication capability between subscribers of each network to subscribers of the other. Both FNSI and UUnet transmit and deliver (carry) traffic from and to their respective subscribers regardless of a direct peering relationship between the networks. The cost associated with carrying traffic from and to their respective subscribers is a cost of doing business and is paid to each provider from their respective subscription revenues.

However, there is greater cost to UUnet under a scenario where FNSI is using transit services at a single exchange point as opposed to peering directly with UUnet at all exchange points in common. Therefore, the solution to UUnet's suggestion that they incur additional cost for carrying other network's traffic is to facilitate peering at all exchange points in common. This would provide for efficient routing and alleviate the need for UUnet to carry traffic beyond the exchange point closest to the packets final destination.

SCENARIO 1

(CURRENT SCENARIO)

FNSI transits traffic through a transit provider to UUnet at one exchange point (MAE East).

A subscriber on FNSI's network located in the Midwest sends a single packet to a subscriber on UUnet's network who is located on the west coast. UUnet is required to carry a packet from MAE East, across the continent to its final destination on the west coast. The cost to UUnet to provide this packet delivery is, 3 of the 4 CyberUnits. FNSI is only required to carry the packet from their Midwest subscriber to the single exchange point - MAE East. The cost to FNSI is one CyberUnit.

Conversely, (the packet's return trip) the west coast UUnet subscriber would send a packet which would travel across UUnet's network to the single exchange point - MAE East. UUnet is required to transport the packet across the continent once again. The cost to UUnet would be three CyberUnits and the cost to FNSI to deliver the packet from MAE East to its Midwest subscriber destination would be one CyberUnit.

In this scenario the average cost to UUnet is three CyberUnits and the average cost to FNSI is one Cyber Unit. This disproportional cost to UUnet is the direct result of UUnet's decision not to facilitate direct peering with FNSI at multiple geographically diverse exchange points as is explained in Scenario 2.

SCENARIO 2

(OPTIMAL SCENARIO FOR BOTH PROVIDERS)

FNSI has a direct peering relationship with UUnet at multiple geographically diverse exchange points, on both the east and west coasts.

A subscriber on FNSI's network located in the Midwest sends a packet to a subscriber on UUnet's network located on the west coast. FNSI carries the packet on its network from the Midwest, across the continent, to the closest exchange point to the packet's final destination on the west coast - MAE West. The cost to FNSI is three CyberUnits. The cost to UUnet to carry the packet from MAE West to its west coast subscriber is one CyberUnit.

Conversely, (the packet's return trip) the west coast UUnet subscriber would send a packet which would travel across UUnet's network to the exchange point closest to its Midwest destination on FNSI's network - MAE East. The cost to UUnet would be three CyberUnits and the cost to FNSI would be one CyberUnit.

It quickly becomes apparent that under a free and open peering relationship, the average cost to each provider is two of four CyberUnits. Therefore, the most cost effective and efficient solution for any two providers is to facilitate free and open peering at all common exchange points. The cost to both providers is identical under a free and open peering policy. Any other solutions that involves monetary exchange for peering or transit services slants the playing field and upsets the fundamental foundation of fair competition.

Summarizing the above two scenario's, one can easily see why a provider might require their peers to exchange traffic at multiple geographically diverse points. The justification for this is delineated in scenario 2, where both providers equally share the cost to deliver the traffic.

Each provider is responsible for 2 of the 4 CyberUnits required to deliver a packet of information originating from one network destined for another.

If UUnet were to peer with FNSI at all four exchange points in common, both organizations would equally share in the cost of delivering traffic to the other's network. Additionally, it would optimize delivery of traffic resulting in cost reduction to both network providers.

If UUnet argues that they incur additional cost from carrying the traffic of other networks, the solution is free and open peering. **It is UUnet's decisions with regard to selective peering that have resulted in UUnet incurring additional cost to transmit or deliver traffic to and from other provider networks.** There is no justification why other providers should bear these additional costs that can be completely eliminated, are directly controllable and the result of UUnet's decisions regarding peering.

The suggestion that charging for peering would lessen the cost to UUnet is only correct if peering is facilitated at all exchange points in common and, the exchange points are geographically diverse. If peering is facilitated at two geographically diverse exchange points in common, there is no justification by either party to charge for the peering relationship. The cost to facilitate peering at exchange points in common is identical to both networks. Each absorbs its own cost for the peering relationship.

It can easily be seen from the examples above that it would cost UUnet **LESS** if they were to peer with companies like FNSI at multiple geographically diverse locations. Additionally, direct peering without monetary exchange would substantially resolve the issues pursuant to maintaining an atmosphere of fair competition in the Internet industry.

Any suggestion that charging for peering would change the fundamental routing of packets is without merit. If a provider were to charge for peering, it would not change the fact that it is more efficient to facilitate the exchange of traffic at multiple geographically diverse exchange points. Once peering is established at multiple geographically diverse exchange points, the cost of exchanging traffic between two networks becomes identical to each network. Therefore, the fee paid for peering creates an unjustified revenue stream to one provider while simultaneously placing the paying provider at a tremendous financial and competitive disadvantage. The paying provider is burden with incurring identical network and packet delivery costs **PLUS** the peering fee resulting from the artificial costs alleged by the charging provider. Charging for peering is clearly anti-competitive and would result in providing a single corporation with monopolistic control of the Internet.

PRIVATE PEERING

VERSES

PEERING AT THE PUBLIC EXCHANGE POINTS OR NAP'S

The Internet and its digital traffic have increased exponentially over the past few years. The NAPs were equipped to handle a certain level of traffic. As the traffic increased beyond design capacity, there was degradation of service, in particular at MAE East and MAE West. The Enterprise has stated that the NAPs are congested and experiencing packet loss (bottlenecking) and suggest that the only alternative is private peering which justifies assessing a peering charge to other backbone providers. The condition of NAP congestion at the MAE's has resulted from over subscribing the capacity of these NAP's. This over subscription has been directly

controllable by the Enterprise. As the Enterprise has expanded capacity at the MAE's, the congestion problem has improved. It is important to emphasize that the Enterprise controls whether or not these NAP's have a congestion problem and the extent of the congestion by controlling the subscription to capacity ratios.

All network service providers who connect to any NAP pay an initial connection fee and a monthly recurring fee for each port connection to the organization that owns and operates the NAP. Therefore, the NAPs are operating as profitable businesses in and of themselves. Margins increase by over subscribing - giving additional revenue to increase capacity.

The Enterprise has argued that they have incurred additional cost to facilitate private peering. Private peering is a mechanism for network service providers to interconnect their networks directly. Private peering can provide for additional routing efficiencies and redundancies. The Enterprise raises the argument that there are additional costs associated with private peering. There are additional costs – equal for both network service providers. It requires that both provider's networks meet at a common location where the interconnection can be made. Both providers must pay the cost to reach and connect at the agreed upon facility. The costs are essentially equal on both sides and historically, each provider has absorbed its own expense.

Private Peering, <u>can and is</u>, being facilitated at the public exchange points or NAP's. Any providers that are connected to a NAP can facilitate private peering between their networks and completely bypass the fabric of the NAP. This completely alleviates any congestion problems for those providers at the NAP. Additional costs are incurred by **both** providers for the direct interconnection. However, the cost is nominal (literally a few hundred dollars a month) and it is equal to both providers.

The Enterprise can directly control the congestion levels at the MAE's. With a continued congestion problem, the Enterprise can claim that they require private peering at locations other than the public exchange points. If this policy is permitted, it will require that other network providers incur additional and disproportional expense to meet the Enterprise's networks at locations delegated by the Enterprise or, this the Enterprise could escalate the cost of making a direct cross connect between competitive networks and the networks controlled by the Enterprise at the MAE's, thereby bypassing the fabric of the NAP and accomplishing a private peering relationship.

It is absolutely paramount that the Internet remain an arena where fair market competition is available on an equal basis to all network service providers through a requirement of open and free peering without monetary settlement at the nation's six established NAP's regardless of whether or not the fabric of the NAP is utilized or the connection is made via a cross connection directly between networks. The condition of open and free peering must be carefully crafted to stipulate that the Enterprise be required to facilitate peering at the nation's six NAP's. These NAPs are the **common and established public exchange points** or Network Access Points. If the condition is not drafted properly, the Enterprise could disconnect from the NAPs or escalate the pricing for cross connections at the NAP's, thereby indirectly facilitating their desire to charge for peering. It is critical that a condition of the merger prohibit the Enterprise from intentionally creating any degradation of traffic to or from their network to another. Absent of such a stipulation, such a practice could easily be implemented which would give the appearance that the Enterprise's network is of superior quality as compared to a competitive network. Once again, this would certainly slant the playing field in favor of the Enterprise. As a condition of the merger, the Enterprise should be required to cease a practice of

over subscribing the capacity of the MAE's by increasing capacity to accommodate customer requirements or divest itself of the MAE East and MAE West NAP's.

MINIMUM PEERING CRITERIA

It is reasonable that certain criteria be met by a network service provider before the Enterprise or other providers be required to peer another provider. Reasonable criteria might require the network service provider to:

1. Have connections at DS3 or greater speeds to at least three of the six diverse NAPs, with at least one connection on opposite sides of the continent. The established NAPs must include any of the following: MAE-East, Sprint NAP, PAC Bell, MAE-West, CIX and AADS Chicago NAP,
2. Have a valid Autonomous System Number (ASN),
3. Have a carrier class router capable of BGP 4,
4. Have the technical capability to run BGP 4,
5. Have a staffed 24x7 NOC (24 hours per day / 7 days per week Network Operations Center) with qualified technicians available to solve problems,
6. Agree to not default any traffic to each others network, and
7. Exchange its routes and its customer 's routes without monetary settlement.

Fair competition in the Internet industry has been instrumental in providing affordable access for all consumers to this powerful communications medium. Fiber Network Solutions, Inc. urges you to take appropriate action to ensure free and opening peering at the nations six NAP's as a condition of any merger.

Respectfully submitted,

FIBER NETWORK SOLUTIONS, INC.

David J. Koch
President and CEO

FIBER NETWORK SOLUTIONS, INC.

Kyle C. Bacon
Vice President - Operations and COO